

THE COMPARATIVE STUDY BETWEEN PROBLEM-BASED
LEARNING AND DISCOVERY LEARNING VIEWED FROM
STUDENTS' CREATIVITY

(A Factorial Design on Eleventh grade Students of SMA Batik 2
Surakarta in the Academic Year of 2017-2018)

THESIS



Submitted to the Department of Language Studies, Graduate School of
Muhammadiyah University of Surakarta in Partial Fulfillment of the Requirements
for the Degree Master of Education

By

SRI SURATMI

S200160058

**DEPARTMENT OF LANGUAGE STUDIES GRADUATE
SCHOOL UNIVERSITAS MUHAMMADIYAH SURAKARTA**

2018

PRIMARY SUPERVISOR'S APPROVAL FORM

The student submits the thesis for examination:

Name : Sri Suratmi

ID Number : S200160058

Department : Language Studies

Field of Study : English Education

Thesis Title : The Comperative Study Between Problem-Based Learning and Discovery Learning Viewed From Students' Creativity (A Factorial Design on Elenenth Grade Students of SMA Batik 2 Surakarta in the Academic Year 2017-2018)

Supervisor's Approval :

I confirm that the thesis written by the above named student meets the scholarly standarts for degreeband is, therefore, eligible to proceed to an examination by the board of examiners of the Department of Language Studies, the Graduate School of Universitas Muhammadiyah Surakarta.

Surakarta, Januari 2018

Primary Supervisor



Dr. Marvadi, M.A.

CO- SUPERVISOR'S APPROVAL FORM

The student submits the thesis for examination:

Name : Sri Suratmi
ID Number : S200160058
Department : Language Studies
Field of Study : English Education
Thesis Title : The Comparative Study Between Problem-Based Learning and Discovery Learning Viewed From Students' Creativity (A Factorial Design on Eleventh Grade Students of SMA Batik 2 Surakarta in the Academic Year of 2017-2018)

Supervisor's Approval :

I confirm that the thesis written by the above named student meets the scholarly standards for degree and is, therefore, eligible to proceed to an examination by the board of examiners of the Department of Language Studies, the Graduate School of Universitas Muhammadiyah Surakarta.

Surakarta, Januari 2018

Co Supervisor



Dr. Anam Sutopo, S.Pd., M.Hum

APPROVAL OF THESIS FOR SUBMISSION

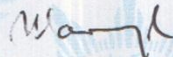
**THE COMPARATIVE STUDY BETWEEN PROBLEM-BASED LEARNING
AND DISCOVERY LEARNING VIEWED FROM STUDENTS' CREATIVITY
(A FACTORIAL DESIGN ON ELEVENTH GRADE STUDENTS OF SMA BATIK 2
SURAKARTA IN THE ACADEMIC YEAR OF 2017-2018/)**

Submitted by
SRI SURATMI

Has been examined by the board of examiners on 1st February 2018. All feedback, corrections, and suggestions recommended by the examiners have been considered and revision has been accordingly made by the student.

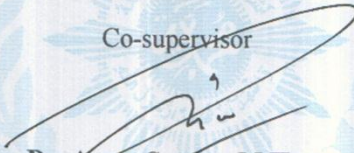
The boards of examiners certify that the thesis is eligible for submission.

The Board of Examiners
Primary supervisor



Dr. Maryadi, M.A

Co-supervisor

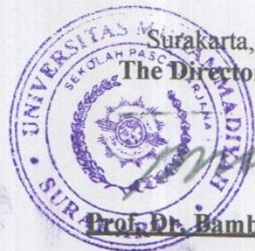


Dr. Anam Sutopo, M.Hum

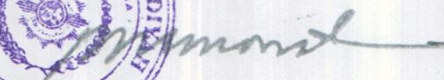
Examiner



Mauly Halwat Hikmat, Ph.D.



Surakarta, 06th February 2018
The Director of Graduate School


Prof. Dr. Bambang Sumardjoko, M.Pd

STATEMENT OF AUTHORSHIP

I hereby confirm that the thesis entitled “The Comparative Study Between Problem-Based Learning and Discovery Learning Viewed From Student’s Creativity (A Factorial Design on Eleventh Grade of SMA Batik 2 Surakarta in the Academic Year 2017-2018) is an original and authentic work written by myself and it has satisfied the rules and regulations of Universitas Muhammadiyah Surakarta with respect to plagiarism. I certify that all quotations and the sources of information have been fully referred and acknowledged accordingly.

I confirm that this thesis has not been submitted for the award of my previous degree in any tertiary institutions in Indonesia or abroad.

Name : Sri Suratmi
ID Number : S200160058
Department : Language Study
Field of Study : English Education

Surakarta, January, 16th 2018



Sri Suratmi

MOTTO

Learn from yesterday, live for today, hope for tomorrow.

The important thing is not to stop questioning.

(Albert Einstein)

DEDICATION

I dedicated this research paper to :

My beloved Mom and Dad,

My brother and my sister,

My family,

All my best friends,

My beloved lecturers,

My Almamater.

ABSTRAK

Suratmi Sri, S200160058."THE COMPARATIVE STUDY BETWEEN PROBLEM-BASED LEARNING AND DISCOVERY LEARNING VIEWED FROM STUDENTS' CREATIVITY (A Factorial Design on Eleventh grade Students of SMA Batik 2 Surakarta in the Academic Year of 2017-2018)". Thesis, Magister Pengkajian Bahasa. Sekolah Pascasarjana. Pembimbing Utama Dr. Maryadi, M.A, Pembimbing kedua Dr. Anam Sutopo. S.Pd., M.Hum

Tujuan dari penelitian ini adalah untuk mengetahui 1) menggunakan pembelajaran berbasis masalah adalah pembelajaran alternatif yang lebih efektif dari pada pembelajaran berbasis penemuan dalam mengajarkan empat kemampuan bahasa, 2) siswa yang memiliki kreativitas tinggi lebih baik daripada mereka yang memiliki kreativitas rendah di dalam penguasaan kemampuan bahasa, Dalam hal ini kreatifitas adalah salah satu factor penting yang mempengaruhi siswa dalam belajar bahasa Inggris, banyak siswa mengira ini adalah suatu cara untuk memperhatikan dan menghargai kreatifitas dan akademis mereka. 3) Ada interaksi antara metode pengajaran dan kreativitas dalam mengajarkan empat kemampuan bahasa.

Metode penelitian yang digunakan adalah desain faktorial. Desain ini adalah sebuah penelitian yang digunakan untuk mengukur hubungan sebab dan akibat dari beberapa variable. Ini sesuai penelitian yang berbentuk eksperimen yang mana melibatkan interaksi untuk menganalisis dari beberapa hubungan variable. Sampel dipilih dengan teknik cluster random sampling. Subyek penelitiannya adalah XI IPA 1 (kelas eksperimen) dan XI IPA 3 (kelas kontrol). Data dikumpulkan dengan menggunakan tes (kreativitas verbal dan empat tes keterampilan bahasa) Data yang terkumpul dianalisis dengan menggunakan statistik distribusi frekuensi, normalitas, dan statistik non-parametrik Kruskal Wallis.

Hasil penelitian menunjukkan bahwa 1) pembelajaran berbasis masalah lebih efektif daripada pembelajaran penemuan dalam mengajarkan empat kemampuan bahasa, Pembelajaran ini mengimplikasikan bahwa pembelajaran berbasis masalah ini akan di jumpai di pembelajaran pada kurikulum 13 karena pembelajaran berbasis masalah ini berdasarkan beberapa tahapan tahapan yang telah diterima di kurikulum 13 dari pada pembelajaran yang berfokus pada penemuan. 2) siswa yang memiliki kreativitas tinggi berkinerja lebih baik daripada mereka yang memiliki kreativitas rendah, Ini tidak perlu menjadi persoalan bahwa siswa yang memiliki kreativitas rendah adalah buruk,, diabaikan atau siswa yang malas, mungkin mereka mempunyai kemampuan yang lebih baik di aspek yang lain.. 3) ada interaksi antara metode pengajaran dan kreativitas. dalam mengajarkan empat kemampuan bahasa.

Keywords: *Problem-based Learning, Discovery Learning, Creativity*

ABSTRACT

Suratmi Sri, S200160058.”THE COMPARATIVE STUDY BETWEEN PROBLEM-BASED LEARNING AND DISCOVERY LEARNING VIEWED FROM STUDENTS’ CREATIVITY (A Factorial Design on Eleventh grade Students of SMA Batik 2 Surakarta in the Academic Year of 2017-2018)”. Thesis, Department of Language Studies, Graduate School of Muhammadiyah University of Surakarta. The primary Supervisor Dr. Maryadi, M.A, and co-supervisor is Dr. Anam Sutopo. S.Pd., M.Hum

The aims of the research are to know whether 1) using problem-based learning is more effective than using discovery learning in teaching four language skills, 2) the students who have high creativity are better than those of the students who have low creativity, Creativity is one of the important factors affecting students in learning English since whenever the students think in a way that regard and respect their creativity or their academic performance . 3) there is any interaction between teaching method and creativity in teaching the four language skills.

The research method used is factorial design. Factorial design is a research design used to measure the cause-effect relationships of variables. Factorial design is suitable in conducting an experiment involving analysis of the interaction of a number of variables relationships. The population of this research is the eleventh grade students of SMA Batik 2 Surakarta in the academic year of 2017/2018.

The samples were selected by using cluster random sampling technique. The research subjects are XI IPA 1 (experimental class) and XI IPA 3 (control class). The data were collected by using test (verbal creativity and four language skills tests). The collected data were analyzed by using frequency distribution, normality, and Kruskal Wallis non-parametric statistic.

The result shows that 1) problem-based learning is more effective than discovery learning in teaching four language skills, .It implies that Problem-based learning meets the expectation of the requirement of learning in using Curriculum 13 since problem-based learning is based on several steps as per to the suggested procedures on Curriculum 13 than those on Discovery. 2) the students who have high creativity perform better than those who have low creativity. It does not necessarily mean that students having low creativity are bad, ignorant, and lazy students; they maybe have better ability on the other aspects, 3) there is an interaction between teaching method and creativity in teaching the four language skills.

Keywords: *Problem-based Learning, Discovery Learning, Creativity*

ACKNOWLEDGMENT

Assalamu'alaikum Wr. Wb

Praise to be Allah SWT, the Almighty, for blessing and guiding in completing this research paper and thanks to prophet Muhammad SWA, peace be upon him. The researcher could finish her research paper entitled **THE COMPARATIVE STUDY BETWEEN PROBLEM-BASED LEARNING AND DISCOVERY LEARNING VIEWED FROM STUDENTS' CREATIVITY (A Factorial Design on Eleventh grade Students of SMA Batik 2 Surakarta in the Academic Year of 2017-2018)**

In conducting this research, the researcher realizes that it is impossible to finish this research paper without much support from several important people. On this best occasion, the researcher wants to give grateful thanks to all people who have helped her to finish the research paper patiently and wisely. On this opportunity, the researcher wants to express her deep gratitude to the following persons:

1. Prof. Dr. Bambang Sumardjoko, M.Pd., the Director of Graduate School of Muhammadiyah University of Surakarta.
2. Prof. Dr. Markhamah, M.Hum., the Head of Language Studies of Muhammadiyah University of Surakarta.
3. Dr. Maryadi, M.A., as the primary supervisor, for giving his a valuable guidance and advice from beginning up to the completing this research paper.
4. Dr. Anam Sutopo, S.Pd., M.Hum as the co-supervisor, for also continuous of correction, advice, guidance, and criticized in finishing this paper.
5. Mauliy Halwat Hikmat, Ph.D., as the internal examiner, who has given evaluation in this research paper.

6. All of the lecturers of English Language Study of Post Graduate, for precious knowledge and experience given to her.
7. Joko Sumarsono, S.Pd,M.Pd.,the Headmaster of SMA Batik 2 Surakarta who has allowed and given permission the writer to carry out her research at the school.
8. All of Students at the eleventh grade of Science 1 and 3 SMA Batik 2 Surakarta thanks for your help and participation in this research.
9. The big family of SMA Batik 2 Surakarta, for giving support, motivation and praying.
10. The researcher's beloved mother for the love, guidance, support and prying.
11. The researcher's beloved family for motivation, support, spirit and prying.
12. The researcher's family in English Study of Post Graduate 2017 for motivation, support, guidance, spirit, and everything.

The researcher realizes that this research paper is still far from being perfect, so all suggestions and criticism for improving this research paper are accepted widely and happily.

Hopefully, this research paper will be useful for the readers and prospective researchers.

Wassalamu'alaikum Wr. Wb.

Surakarta,

Sri Suratmi

TABLE OF CONTENT

TITLE	i
SUPERVISOR’S APPROVAL FORM	ii
SUPERVISOR’S APPROVAL FORM	iii
APPROVAL OF THESIS FOR SUBMISSION	iv
STATEMENT OF AUTHORSHIP	v
MOTTO	vi
DEDICATION	vii
ABSTRAK	viii
ABSTRACT	ix
ACKNOWLEDGEMENT	x
TABLE OF CONTENT	xi
LIST OF TABLE	xii
LIST OF APPENDICES	xv
CHAPTER I INTRODUCTION	
A. Background of the Study.....	1
B. Problem Statement	4
C. Objective of the Study.....	4
D. Benefit of the Study.....	5
CHAPTER II LITERATURE REVIEW	
A. Review of Related	6
B. Learning	11
1. Learning Language	11
2. Learning Principle	12
a. Behartorism	12

b. Cognitivism	12
c. Humanism	12
d. Construetivism	13
3. Scientific Approach	14
4. Scientific approach in kurikulum 2013	14
5. Quatity of good learner	
C. Skill Integration Class	17
1. Listening	18
2. Speaking	18
3. Reading	19
4. Writing	19
D. Creativity	20
1. Definition of Creativity	20
2. The Importance of Creativity	20
3. Creative ELT Class	21
4. Obstacle to Creativity in ELT	25
5. Verbal Creativity	26
E. Teaching Method in Scientific Approach	27
1. Problem Based Learning	27
2. Discovery Learning	28
F. Rationale.....	31
1. The Differences between Problem Based Learning and Discovery Learning	32
2. The Differences between Student with High Creativity and Students with Low Creativity.....	32
3. Interaction between Problem Based Learning and Discovery.....	32
G. Hypothesis	33

CHAPTER III RESEARCH METHOD

A. Context of the Research	34
1. Place of the Research	34
2. Time of the Research.....	34
3. Profile of English Class of SMA Batik 2 Surakarta	33
B. Research Type	35
C. Research Variables	36
1. Independent variable	36
2. Dependent variable	36
3. Attributive variable	36
D. Subject of the Study	36
1. Population	37
2. Sample	37
3. Sampling	37
E. Technique of Collecting the Data.....	37
1. Skill Integrated Test	38
2. Verbal Creativity Test	38
F. Procedures of the Research	39
G. Technique of Analyzing the Data.....	42
1. Normality	42
2. Homogeneity	43
3. ANOVA Two-way Factorial Design.....	43
4. Tukey Test.....	45
H. Statistical Hypothesis	46
CHAPTER IV RESEARCH FINDINGS AND DISCUSSION	47
A. Research Findings	47
1. Data Description.....	47
2. Data Analysis	79
B. Discussion	83

CHAPTER V CONCLUSION, IMPLICATION AND SUGGESTION	
A. Conclusion	85
B. Implication	86
C. Suggestion	87
BIBLIOGRAPHY	89

LIST OF TABLE

Table. 3.1 The Time of Research.....	33
Table.3.2 Factorial Design.....	34
Table 3.3 Population of The research.....	36
Table 4.1 Schedule of Giving Treatment.....	47
Table 4.2 Data Description of Students with High and Low Creative.....	48
Table 4.3 Frequentcy Distribution of the Students' Cognitive Scores	
Taughtusing Problem-based Learning.....	49
Table 4.4 Histogram and Polygon of Students' Cognitive Score Taught	
Using problem-based Learning.....	50
Table 4.5Frequentcy Distribution of the Students'Psychomotor Score	
Taughtusing Problem-based Learning.....	50
Table 4.6 Histogram and Polygon of Students'Psychomotor Score	
Taughtusing Problem-based Learning.....	51
Table 4.7 Frequentcy Distribution of the Students' affective.Score	
Taught using Problem-based Learning.....	51
Table 4.8 Frequentcy Distribution of the Students' Cognitive Scores	
Taught Using Discovery Learning.....	51
Table 4.9. Histogram and Polygon of Students' Cognitive Score Taught	
UsingDiscovery Learning.....	52
Table 4.10. Frequentcy Distribution of the Students'Psychomotoric Score	
Tough Using Discovery Learning.....	53

Table 4.11. Histogram and Polygon of Students' Psychomotor Score	
Taught Using Discovery Learning.....	54
Table 4.12. Frequency Distribution of the Students' affective Score	
Taught Using Discovery Learning.....	54
Table 4.13. Histogram and Polygon of Students' affective Score	
Taught Using Discovery Learning.....	55
Table 4.14. Frequency Distribution of the Cognitive Scores	
of Students' with High Creativity.....	55
Table 4.15. Histogram and Polygon of the Cognitive Scores of	
Students' with High Creativity.....	56
Table 4.16. Frequency Distribution of the Psychomotor Scores of	
Students' with High Creativity.....	57
Table 4.17. Histogram and Polygon of the Psychomotor Scores of	
Students' with High Creativity.....	58
Table 4.18. Frequency Distribution of the Affective Scores of	
Students' with High Creativity.....	58
Table 4.19. Histogram and Polygon of the Affective Scores of	
Students' with High Creativity.....	59
Table 4.20. Frequency Distribution of the Cognitive Scores of	
Students' with Low Creativity.....	59
Table 4.21. Histogram and Polygon of the Cognitive Scores of	
Students' with Low Creativity.....	60
Table 4.22. Frequency Distribution of the Psychomotor Scores of	
Students' with Low Creativity.....	61

. Table 4.22. Histogram and Polygon of the Psychomotor Scores of Students' with Low Creativity.....	61
Table 4.23. Frequency Distribution of the Affective Scores of Students' with Low Creativity.....	62
Table 4.24. Histogram and Polygon of the Affective Scores of Students' with Low Creativity.....	62
Table 4.25. Frequency Distribution of the Cognitive Scores of Students' with High Creativity Taught Using Problem-based Learning	63
Table 4.26. Histogram and Polygon of the Cognitive Scores of Students' with High Creativity Taught Using Problem- based Learning.....	63
Table 4.27. Frequency Distribution of the Psychomotor Scores of Students' With High Creativity Taught Using Problem-based Learning.....	64
Table 4.28. Histogram and Polygon of the Psychomotor Scores of Students' with High Creativity Taught Using Problem-based Learning.....	65
Table 4.29. Frequency Distribution of the Affective Scores of Students' with High Creativity Taught Using Problem-based Learning.....	65
Table 4.30. Histogram and Polygon of the Affective Scores of Students' with High Creativity Taught Using Problem-based Learning.....	66
Table 4.31. Frequency Distribution of the Cognitive Scores of	

Students' with High Creativity Taught Using Discovery Learning.....	.66
Table 4.32. Histogram and Polygon of the Cognitive Scores of Students'with High Creativity Taught Using Discovery Learning.....	67
Table 4.33. Frequency Distribution of the Psychomotor Scores of Students' with High Creativity Taught Using Discovery Learning.....	68
Table 4.34. Histogram and Polygon of the Psychomotor Scores of Students' withHigh Creativity Taught Using Discovery Learning.....	69
Table 4.35. Frequency Distribution of the Affective Scores of Students'with High Creativity Taught Using Discovery Learning.....	69
Table 4.36. Histogram and Polygon of the Affective Scores of Students' withHigh Creativity Taught Using Discovery Learning.....	70
Table 4.37. Frequency Distribution of the Cognitive Scores of Students' withLow Creativity Taught Using Problem-based Learning	70
Table 4.38. Histogram and Polygon of the Cognitive Scores of Students' With Low Creativity Taught Using Problem-based Learning.	71
Table 4.39. Frequency Distribution of the Psychomotor Scores of Students'With Low Creativity Taught Using Problem-based Learning.....	72

Table 4.40. Histogram and Polygon of the Psychomotor Scores of Students' with Low Creativity Taught Using Problem-based Learning.....	73
Table 4.41. Frequency Distribution of the Affective Scores of Students' with High Creativity Taught Using Problem-based Learning.....	73
Table 4.42. Histogram and Polygon of the Affective Scores of Students' withLowCreativity Taught Using Problem-based Learning.....	74
Table 4.43. Frequency Distribution of the Cognitive Scores of Students' withLow Creativity Taught Using Discovery Learning.....	74
Table 4.44. Histogram and Polygon of the Cognitive Scores of Students' withLow Creativity Taught Using Discovery Learning.....	75
Table 4.45. Frequency Distribution of the Psychomotor Scores of Students' with Low Creativity Taught Using Discovery Learning.....	76
Table 4.46. Histogram and Polygon of the Psychomotor Scores of Students'with LowCreativity Taught Using Discovery Learning.....	76
Table 4.47. Frequency Distribution of the Affective Scores of Students' withLow Creativity Taught Using Discovery Learning.....	77
Table 4.48. Histogram and Polygon of the Affective Scores of Students' with Low Creativity Taught Using Discovery Learning.....	78
Table 4.49. Summary of Normality Tests on Cognitive Skill.....	79
Table 4.50. Summary of Normality Tests on Affective Skill.....	80
Table 4.51. Summary of Non-parametric Test Result.....	80

LIST OF APPENDICES

APPENDIX 1 Cognitive Analysis.....	91
APPENDIX 2 Try out Analysis.....	108
APPENDIX 3 Post Test Analylis.....	119
APPENDIX 4 Point of Creativity.....	130
APPENDIX 5Creativity Test.....	139
APPENDIX 6List of the Students in Experimental Class.....	147
APPENDIX 7List of the Students in Control Class.....	149
APPENDIX 8 Student's Scores.....	151
APPENDIX9Normality Total.....	153
APPENDIX10Normality on Students' Cognitive Score in Control Class.....	154
APPENDIX 11Normality on Students' Cognitive Score in Experimental Class Having High Creativity.....	155
APPENDIX 12Normality on Students' Cognitive Score in Experimental ClassHaving Low Creativity.....	156
APPENDIX 13Normality on Students' Cognitive Score in Control Class Having High Creativity.....	157
APPENDIX 14Normality on Students' Cognitive Score in Control Class Having Low Creativity.....	158
APPENDIX15Normality on Students' Affective Score in Experimental Class.....	159
APPENDIX 16Normality on Students' Affective Score in Control Class.....	160
APPENDIX 17Normality on Students' Affective Score in Experimental Class Having High Creativity.....	161

APPENDIX 18. Normality on Students' Affective Score in Experimental Class Having Low Creativity	163
APPENDIX 19. Normality on Students' Affective Score in Control Class Having High Creativity	164
APPENDIX 20. Normality on Students' Affective Score in Control Class Having Low Creativity	166
APPENDIX 21. Normality on Students' Psychomotor Score in Experimental Class	167
APPENDIX 22. Normality on Students' Psychomotor Score in Control Class	168
APPENDIX 23. Normality on Students' Psychomotor Score in Experimental Class Having High Creativity	169
APPENDIX 24. Normality on Students' Psychomotor Score in Experimental Class Having Low Creativity	170
APPENDIX 25. Normality on Students' Psychomotor Score in Control Class Having High Creativity	171
APPENDIX 26. Normality on Students' Psychomotor Score in Control Class Having Low Creativity	172
APPENDIX 27. The Result of Kruskal-Wallis Test on Cognitive Score between Experimental and Control Group	173
APPENDIX 28. The Result of Kruskal-Wallis Test on Affective Score between Experimental and Control Group	174
APPENDIX 29. The Result of Kruskal-Wallis Test on Psychomotor Score between Experimental and Control Group	175
APPENDIX 30. The Result of Kruskal-Wallis Test on Students' Cognitive Score Having High and Low Creativity between Experimental and Control Group	176
APPENDIX 31. The Result of Kruskal-Wallis Test on Students'	

Affective Score Having High and Low Creativity between Experimental and Control Group.....	177
APPENDIX 32. The Result of Kruskal-Wallis Test on Students’ Psychomotor Score Having High and Low Creativity between Experimental and Control Group	178
APPENDIX 33. The Result of Kruskal-Wallis Test on the Interaction between Teaching Method and Creativity on the Students’ Cognitive Score.....	179
APPENDIX 34. The Result of Kruskal-Wallis Test on the Interaction between Teaching Method and Creativity on the Students’ Affective Score.....	180
APPENDIX 35. The Result of Kruskal-Wallis Test on the Interaction between Teaching Method and Creativity on the Students’ Psychomotor Score.....	181
APPENDIX 36. Research Permission Letter.....	182
APPENDIX 37. Sample of Lesson Plan.....	183
APPENDIX 38. The Picture of Research.....	184